New Pipeline Coating and Application Technologies

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Liquid Epoxy Products and Equipment

• **Air-Cartridge Epoxy Spray Equipment**
  - Epoxy Cartridge (3:1 Ratio)
  - Regulator
  - Quick Connect Fitting
  - Air Tube Supply
  - Static Mixing Tubes (Straights and 90’s)
  - Microwave, Welders Box, Water Bath or Heat Source

**Advantages Over Plural Component Spray Equipment**
- Used for Small Applications (Fabricated Pipe, Fittings, Welds)
- Maintenance Problems Minimized
- Cost Effective
Plural Equipment – Spray Epoxy Application

- Used for Recoat of Larger Areas (Components are Heated in Two Hoppers)
- Product Mixes at Tip (Hoses Take Heated Product from Plural Component Unit to Whip Hose)
- Plural Component Unit can be used in the Field or at a Pipe Fabrication Facility
- Volume of Pipe Work will Justify its Suitability
- Workers must be Well-Trained to Operate (There will be Operational Problems Associated with the Use of Equipment)
100% Solids Liquid Epoxy Coating - Bell hole rehab - before and after.
100% Solids Liquid Spray-Applied Epoxy Coating - Applied with a plural component unit with 3:1 spray equipment.
Crosstex  Job Involving Spray-Applied Liquid Epoxy

Case Study
Crosstex Job Details

• 20” Recoat Job – 1,800’
• Contractor sprayed 28-33 mils
• Sprayed 125 Lineal Feet per Hour
• Pumped Materials from 55 Gallon Containers Into 25 Gallon Heated Hoppers
• Resin Heated to 155 Degrees F.
• Hardener Heated to 110 Degrees F.
• Air Temperature 55 degrees F., Pipe Temperature 55 Degrees F.
Additional Details of Crosstex Spray-Applied Epoxy Recoat Job

- 2 ea. 3/8” Static Mixers
- 3,000 PSI Pressure
- 12.5’ x ¼” Whip Hose
- Used 527-535 Tips
Petrolatum/Wax High Temperature Tape

- Good up to 225 Degrees F. when used with Glass Outerwrap on underground discharge piping around compressor sites.
- Sp#1, 2 and/or 3 surface prep- Remove all loose, disbonded materials from surface using wire-brush, power-brush.
- Excellent surface tolerant coating to use under insulation.

The following series of pictures were taken at a facility where both Hotline Petrolatum Tape and a PVC tape outer wrap were used to coat and wrap pipe that would be exposed to 160-180 F. degree temperatures. As the pipe was turned mechanically, a hand-wrapping machine was used to apply both tapes with proper tension.
Surface Tolerant Epoxy Used in Conjunction with Urethane (Spray or Brush-Applied)

- Surface tolerant two-part epoxy (3:1 ratio)
- 94% solid, 6% solvents with glass-flake
- Used on regulator sets, meter pipe, vaults, bridge pipe spans, utility piping on top of mall
- 8 mils dry, 10 mils wet (epoxy), 2-3 mils (urethane)
- Brush or spray applied with an airless gun
- Significant longevity vs. a typical alkyd paint system
Petrolatum/Wax Tape Used in Conjunction with Water-Cured Glass Outer Wrap for Coating Risers

- The process involves application of a paste primer, petrolatum/wax tape along with a water-activated glass outer wrap used in conjunction as mechanical outer wrap
- After SP 1,2 hand/power-brush cleaning, apply coating products 1.5’ above-grade and 1.5’ below-grade utilizing a 50% overlap for best performance
- Corrosion coating is the paste primer and petrolatum/wax tape applied to pipe or riser/interface area. Glass Outerwrap is the water-activated outer wrap that will cure hard and can be backfilled in less than an hour.
- Glass Outerwrap can be painted over with company approved paint to tie-in with the existing structures for improved UV protection and an aesthetic pleasing installation
- Installation is a permanent fix for the riser ground/interface corrosion problem
Lower pipeline until full weight is re-established on support areas.
Fiberglass Water Activated Glass Outer Wrap Application

Remove roll from hermetically sealed foil pouch.

Place roll in water for 20 to 30 seconds.

Spirally wrap with a 50% + overlap.
Wind line area protected with petrolatum tape and a glass outer wrap.
Petrolatum/wax tape and glass outer wrap on soil to air interface.
Product Demonstration of New Coating Products Unique to the Industry

• Butyl 65 (mil) Cold-Applied Tape – a cold-applied stretchy, butyl adhesive tape utilizing EPDM technology for above or below/grade use

• Protal 7300 - a 100% solids epoxy used for wet-pipe application- cures to a 20-40 mil thickness

• Outer-Armor Liquid Coating–a two-part hybrid epoxy developed as an overcoat to petrolatum/wax tape or as a stand alone coating